

ABSTRACT OF THE DISCLOSURE

The present invention provides compositions and methods for increasing therapeutic gain in radiotherapy and chemotherapy for proliferating malignant or nonmalignant disease to produce high probability of tumor control with low frequency of sequelae of therapy by administering a therapeutically effective amount of a histone deacetylase inhibitor. The compounds are capable of simultaneously stimulating the epithelium regrowth, inhibiting the fibroblast proliferation, decreasing the collagen deposit, suppressing the fibrogenic growth factor, subsiding the proinflammatory cytokine and modulating the expression of cell cycle genes, tumor suppressors and oncogenes, and are useful to increase the therapeutic gain in radiotherapy and chemotherapy, which results in decrease of skin swelling and inflammation, promotion of epithelium healing in mucosa and dermis, decrease of xerostomia, prevention/reduction of severity of plantar-palmar syndrome, prevention of tissue fibrosis, ulceration, necrosis and tumorigenesis, and increase of tumor growth inhibition and tumor therapy effectiveness.